

**REMARKS**

Claims 1-17 are pending in the present application. As shown in the foregoing amendment, Applicant has amended the Abstract of the specification to overcome the Examiner's objection. Applicant respectfully requests withdrawal of the rejections and objection, and allowance of the claims.

**I. The claims would not have been obvious**

Claims 1-17 stand rejected due to alleged obviousness under 35 U.S.C. § 103(a) over Spenadel et al (U.S. Patent No. 5,246,783, hereafter "Spenadel") in view of Pat. No. WO 93/04117, hereafter "Maxfield". Applicant respectfully submits that the proposed combination of references fails to disclose or suggest all of the claimed combinations of features, as required for a prima facie obviousness rejection under §103. For at least the reasons herein, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

Claim 1 recites:

A power cable comprising:  
a conductive material core; and  
at least one covering layer, characterized in that said at least one covering layer is constituted essentially of a material comprising an inorganic compound made from a nanocomposite material and an organic compound positioned between layers of said inorganic compound.

Claim 11 recites:

A method of fabricating at least one conductive layer of a power cable having a conductive core, comprising the following steps:  
treating layers of an inorganic compound with an agent to render said inorganic compound compatible with an organic compound;  
inserting said organic compound between said layers of said inorganic compound at a temperature higher than the temperature at which

said organic compound softens or melts to exfoliate said inorganic compound; and

obtaining a material with said organic compound inserted between the layers of said inorganic compound.

Spenadel discloses electrical devices comprising polymeric insulating or semiconducting materials. More specifically, Spenadel discloses a power cable having a conductive material core and covering layers. The covering layers comprise semiconductive shields containing inorganic filler (carbon black), and insulation made from an organic compound disposed between semiconductive shields. However, Applicant respectfully submits that Spenadel does not disclose or suggest an inorganic compound made from a nanocomposite material, as acknowledged by the Examiner.

Maxfield discloses a melt process formation of polymer nanocomposite of exfoliated layered material. Applicant refers the Examiner to application page 2, lines 2-4 for additional disclosure. Further, Maxfield discloses a nanocomposite composition which can be used for "components for the electrical and electronics industries." That composition comprises a continuous polymeric phase and inorganic platelet particles (for example, made from phyllosilicates).

The Examiner proposes to overcome the acknowledged deficiencies of Spenadel by combining it with Maxfield. More specifically, the Examiner asserts that it would have been obvious to modify the polymeric composition of Spenadel to produce the nanocomposite composition disclosed in Maxfield.

Applicant respectfully submits that the proposed combination of references fails to disclose or suggest all of the claimed combinations of features. For example, but not

by way of limitation, Applicant respectfully submits that the proposed combination of references fails to disclose or suggest that at least one covering layer is constituted essentially of a material comprising an inorganic compound made from a nanocomposite material, as recited in independent claim 1, or treating layers of inorganic compound with an agent to render it compatible with an organic compound while exfoliating the inorganic compound, as recited in independent claim 11.

Applicant respectfully submits that it would not have been obvious for one skilled in the art to use the nanocomposite composition of Maxfield in semiconductive layers of a the power cable of Spenadel. Accordingly, it is submitted that there is no proper motivation to combine the references. Applicant respectfully submits that in Maxfield, the composition is disclosed to improve tensile strength, tensile modulus and ultimate elongation, mechanical reinforcement, and imparting of lower permeability to polymers.

With respect to the presently claimed invention, Applicant directs the Examiner to application page 6, lines 30-37, which disclose that “the mechanism of forming the nanocomposite material and extruding it encourages an orientation of the organic compound which limits migration of space charges; nanocomposite material improves the resistance of the cable to breakdown in the event of a change of polarity.”

Further, Applicant respectfully submits that one skilled in the art would not have been motivated to combine Maxfield and Spenadel to produce the claimed invention. For example, but not by way of limitation, Applicant respectfully submits that the citation that Maxfield discloses “components for the electrical and electronics industries” is one

of a number of examples of the uses at page 35, lines 30-36 of Maxfield, which also include sports equipment and bottles.

Applicant respectfully submits that Maxfield fails to disclose a sufficiently detailed description of the use of the nanocomposite composite for Maxfield to be applied to the semiconductive layers of a power cable. Due to the lack of motivation, Applicant respectfully requests withdrawal of the obviousness rejection, and allowance of the independent claims. Additionally, it is unclear how the nanocomposite material would be used in the semiconductor shield illustrated in Figures 3 and 4 of Spenadel.

Further, Applicant respectfully submits that the dependent claims are allowable for at least the same reasons as the independent claims from which they depend.

## **II. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

U.S. APPLICATION NO. 09/673,143  
AMENDMENT UNDER 37 C.F.R. § 1.111

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

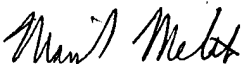
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**APPENDIX**

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE ABSTRACT:**

**Please amend the Abstract as follows:**

The invention relates to a power cable [comprising]having a conductive material core and at least one covering layer, characterized in that said covering layer is constituted essentially of a material comprising an inorganic compound of sheet structure and an organic compound inserted between the layers of said inorganic compound.